



S.EA-639

DEPARTMENT OF TRADE AND COMMERCE
STANDARDS BRANCH

OTTAWA, November 2, 1964.

TYPE APPROVAL

SANGAMO TYPE "FWS" THERMAL DEMAND-ENERGY METER

The apparatus specified and illustrated herein has been duly approved by the Standards Branch under the provisions of the Electricity Inspection Act, Chapter 94, R.S. 1952, and may be admitted to verification in Canada.

Apparatus Approved: Type "FWS" 2- and 2- $\frac{1}{2}$ Element Combination Thermal Demand-Energy Meters, manufactured by the Sangamo Company Limited, Leaside, Toronto 17, Ontario.

Rating of Apparatus:

2-Element

Current Range (amperes)	0.12-7.5	1.2-75	2.5-150	2.5-200
Voltage Rating (volts)	115, 120,	230, 240,	460, 480,	575, 600
* Disc constant Kh	1.2	7.2	14.4	14.4
Demand Scale (watts)	1500	1500	1500	1500
* Kilowatts Full Scale	1.5	15	30	45
# * Multiplier	1	10	20	30
Register Ratio	166-2/3	277-7/9	277-7/9	416-2/3

* Disc constants, multipliers and kilowatts full scale given above are for the 115- and 120-volt ratings. For all other voltages, these values are increased by the voltage multiple.

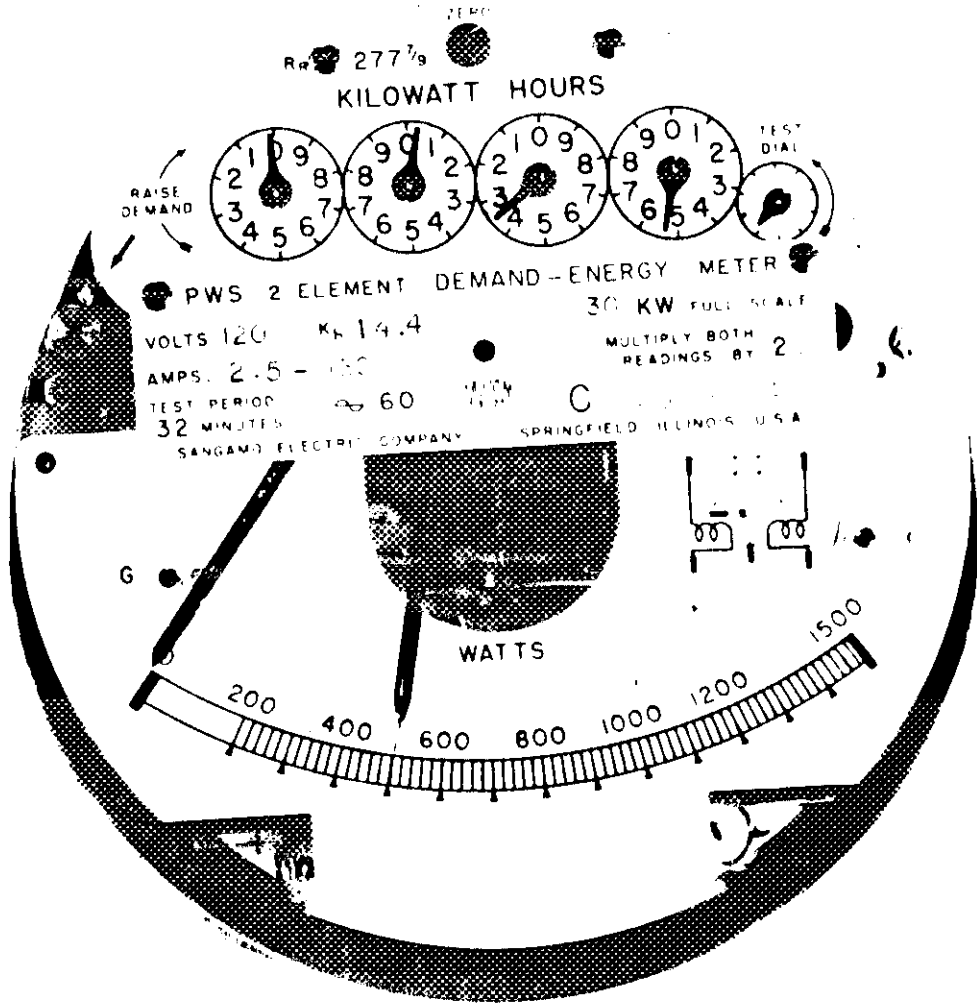
Applies to both watthour and demand readings.

2- $\frac{1}{2}$ Element Delta

Current Range (amperes)	0.12-7.5	1.2-75	2.5-150
Voltage Rating (volts)	240	240	240
Disc constant Kh	2.4	14.4	28.8
Demand Scale (watts)	1500	1500	1500
Kilowatts Full Scale	3	30	60
# Multiplier	2	20	40
Register Ratio	166-2/3	277-7/9	277-7/9

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SANGAMO TYPE "PWS" THERMAL DEMAND-ENERGY METER



2- $\frac{1}{2}$ Element Wye

Current Range (amperes)	0.12-8.5	1.2-85
Voltage Rating (volts)	120 and 240	
* Disc constant Kh	1.8	10.8
Demand Scale (watts)	1500	1500
* Kilowatts Full Scale	3	30
* # Multiplier	2	20
Register Ratio	222-2/9	370-10/27

* Disc constants, multipliers and kilowatts full scale given above are for 120 volt ratings, multiply by 2 for 240 volt ratings.

Applies to both watthour and demand readings.

Test period all ratings	32 minutes
Frequency " "	50 and 60 cycles
Register " "	4-circle clock type

Description: This is a consolidation of the 2-element ratings covered under circular S-EA.547 of May 7, 1962, and 2- $\frac{1}{2}$ element delta and 2- $\frac{1}{2}$ element wye ratings. All ratings are now approved with a magnetic bearing system. This bearing system and the watthour section are essentially the same as those used in the type P20 polyphase watthour meter. The frame has several mechanical changes to carry the thermal demand attachments.

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